

**Amendment to the Claims:**

1-53. (Cancelled).

54. (Previously Presented) A method of deactivating a pathogenic chemical agent comprising:

subjecting the pathogenic chemical agent to a peroxide in the form of a vapor in the presence of a nitrogen containing compound in the form of a gas, a ratio 5 of the peroxide to the nitrogen containing compound being between 1:1 and 1:0.0001, the nitrogen containing compound being of the general formula:



where  $\text{R}_1$ ,  $\text{R}_2$ , and  $\text{R}_3$  independently are selected from H and an alkyl group.

55. (Previously Presented) The method as set forth in claim 54, wherein:

the peroxide includes hydrogen peroxide.

56. (Previously Presented) The method as set forth in claim 54, wherein:

the peroxide is in the form of a vapor.

57. (Previously Presented) The method as set forth in claim 56, further including:

vaporizing a liquid peroxide compound to form a peroxide vapor.

58. (Previously Presented) The method as set forth in claim 54, wherein:

the nitrogen containing compound includes ammonia.

59. (Previously Presented) The method as set forth in claim 54, wherein:

the nitrogen containing compound includes an alkyl amine.

60. (Previously Presented) The method as set forth in claim 54, wherein:

the ammonia gas and the hydrogen peroxide vapor is present in a ratio of between 1:1 and 0.0001:1.0.

61. (Previously Presented) The method as set forth in claim 54, wherein:

the nitrogen containing compound and peroxide is in the form of a gaseous mixture.

62. (Previously Presented) The method as set forth in claim 61, wherein:

the nitrogen containing compound is at a concentration of at least 1 ppm in the gaseous mixture.

63. (Previously Presented) The method as set forth in claim 62, wherein:

the nitrogen containing compound concentration is less than about 100 ppm.

64. (Previously Presented) The method as set forth in claim 63, wherein:

the nitrogen containing compound concentration is at least about 3 ppm in the gaseous mixture and less than about 20 ppm.

65. (Previously Presented) The method as set forth in claim 64, wherein:

the nitrogen containing compound includes ammonia at a concentration of about 8 ppm.

66. (Previously Presented) The method as set forth in claim 61, wherein:

the peroxide is at a concentration of at least 50 ppm in the gaseous mixture.

67. (Previously Presented) The method as set forth in claim 61, wherein:

the peroxide is at a concentration of less than 1000 ppm in the gaseous mixture.

68. (Previously Presented) The method as set forth in claim 67, wherein:

the peroxide is at a concentration of at least 400-800 ppm in the gaseous mixture.

69. (Previously Presented) The method as set forth in claim 68, wherein:

the nitrogen containing compound includes ammonia at a concentration of from about 3-20 ppm.

70. (Previously Presented) The method as set forth in claim 69, wherein:

the temperature is about 23-25°C.

71. (Previously Presented) The method as set forth in claim 69, wherein:

the peroxide includes hydrogen peroxide at a concentration of about 600 ppm in the gaseous mixture.

72. (Previously Presented) The method as set forth in claim 71, wherein:

the nitrogen containing compound includes ammonia at a concentration of about 8 ppm in the gaseous mixture.

73. (Previously Presented) The method as set forth in claim 66, wherein:

the peroxide concentration is at least about 200 ppm in the gaseous mixture.

74. (Previously Presented) The method as set forth in claim 61, wherein:

the gaseous mixture further includes a carrier gas.

75. (Previously Presented) The method as set forth in claim 74, wherein:

the carrier gas includes air.

76. (Previously Presented) The method as set forth in claim 54, wherein:

the chemical agent includes at least one of G-type, V-type, and H-type chemical agents, and combinations thereof.

77. (Previously Presented) The method as set forth in claim 76, wherein the chemical agent includes a G-type chemical agent and the method further includes:

5 contacting the pathogenic chemical agent with the nitrogen containing compound and peroxide for sufficient time to reduce the G-type agent to a level of less than 1% of its original concentration.

78. (Previously Presented) The method as set forth in claim 77, wherein:

the contacting time is up to about six hours.

79. (Previously Presented) The method as set forth in claim 54, further including:

maintaining the temperature during the step of subjecting at from about 15°C to about 30°C.

80. (Previously Presented) The method as set forth in claim 54, wherein the nitrogen containing compound is a liquid and the method further includes:

vaporizing the liquid in a vaporizer.

81.-90. (Cancelled)

91. (Previously Presented) A method for decontamination of an item contaminated with GD, the method comprising:

contacting the item contaminated with GD in an enclosure with a vapor containing a peroxide and ammonia for sufficient time to reduce the concentration of 5 GD to less than about 1% of its initial concentration, the time for the concentration to reach 1% of its initial concentration being less than 6 hrs.

92. (Previously Presented) A method of deactivating a pathogenic chemical agent comprising:

5 forming a peroxide vapor;  
increasing the pH of the vapor with a pH-increasing compound;  
subjecting the pathogenic chemical agent to the peroxide at the increased pH to deactivate the chemical agent, thereby reducing the concentration of the chemical agent to less than 1% of the original concentration by weight.

93. (Previously Presented) The method as set forth in claim 92, wherein the peroxide includes hydrogen peroxide and the pH-increasing compound includes ammonia.

94. (Previously Presented) A method of deactivating a pathogenic chemical agent comprising:

forming a peroxide vapor comprising hydrogen peroxide;

increasing the pH of the vapor with a pH-increasing compound 5 comprising ammonia, wherein the hydrogen peroxide is at a concentration of from about 200-800 ppm and the ammonia is at a concentration of from 3-40 ppm; and

subjecting the pathogenic chemical agent to the peroxide at the increased pH to deactivate the chemical agent, thereby reducing the concentration of the chemical agent to less than 1% of the original concentration by weight.

95. (Previously Presented) The method as set forth in claim 94, wherein the temperature is room temperature.

96. (Previously Presented) A method of deactivating a biologically active substance comprising:

subjecting the biologically active substance to a mixture of a strong 5 oxidant compound and an alkaline compound, both in a gaseous form, the alkaline compound in gaseous form includes a mist formed by atomizing a liquid alkaline compound.

97. (Cancelled).

98. (Previously Presented) The method as set forth in claim 96, wherein:

the strong oxidant includes a peroxy compound.

99. (Previously Presented) The method as set forth in claim 98, further including:

vaporizing a liquid peroxy compound to form a peroxy vapor.

100. (Previously Presented) The method as set forth in claim 96, wherein:

the alkaline compound includes a short chain alkyl amine.

101. (Previously Presented) The method as set forth in claim 96, wherein:

the peroxy compound includes hydrogen peroxide.

102. (Previously Presented) The method as set forth in claim 96, wherein:

the biologically active substance includes one or more of chemical agents, pathogens, prions, and biotoxins.

103. (Previously Presented) The method as set forth in claim 102, wherein:

the biologically active substance includes G-type nerve agents.

104. (Previously Presented) The method as set forth in claim 91, wherein:

the ammonia gas and the hydrogen peroxide vapor are present in a ratio of between 1:1 and 0.0001:1.0.